

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A starter/generator system for an engine, comprising:
a starter/generator including an exciter stator with a DC winding; and
a multi-use controller, for providing AC power to said exciter stator during a start mode of operation and DC power to said exciter stator during a generate mode of operation, such that said multi-use controller ~~operates~~ is configured to operate as an exciter power supply during said start mode and as a generator control unit during said generate mode, said multi-use controller comprising:

a power conversion unit for converting input DC power to said AC power provided to said exciter stator during said start mode of operation and converting input DC power to said DC power provided to said exciter stator during said generate mode; and

a switching driver ~~for driving~~ configured to drive switching elements of said power conversion unit based on start control signals received during said start mode and based on generate control signals received during said generate mode, such that said switching driver is configured to output first switch driving signals for causing said power conversion unit to perform DC-AC conversion upon receiving start control signals and to output second switch driving signals for causing said power conversion unit to perform DC-DC conversion upon receiving generate control signals.

2. (Previously Presented) The system of claim 1, wherein said multi-use controller provides the AC power during said start mode with a predetermined magnitude and frequency to energize said exciter stator in said starter/generator, and provides the DC power during said generate mode with a predetermined voltage level to produce a regulated voltage level output from said starter/generator.

3. (Original) The system of claim 2, wherein said regulated output voltage is applied at a predetermined portion of an AC bus.

4. (Previously Presented) The system of claim 1, wherein said starter/generator starts and maintains operation of an aircraft engine.

5. (Original) The system of claim 1, wherein said starter/generator is synchronous and brushless.

6. (Previously Presented) The system of claim 1, further comprising a start converter for starting an engine in combination with said exciter stator.

7. (Currently Amended) A multi-use controller for a starter/generator system, comprising:
a logic circuit for receiving input signals and generating start control and generator control signals based on said input signals;

a power conversion unit for converting input DC power to said AC power provided to said exciter stator during said start mode of operation and converting input DC power to said DC power provided to said exciter stator during said generate mode; and

a switching driver configured to drive for driving switching elements of said power conversion unit based on start control signals received during said start mode and based on generate control signals received during said generate mode, such that said switching driver is configured to output first switch driving signals for causing said power conversion unit to perform DC-AC conversion upon receiving start control signals from said logic unit and to output second switch driving signals for causing said power conversion unit to perform DC-DC conversion upon receiving generate control signals from said logic circuit.

8. (Previously Presented) The multi-use controller of claim 7, wherein said input signals include signals relating to a regulated voltage level being applied to a particular line portion of said starter/generator system.

9. (Previously Presented) The multi-use controller of claim 7, wherein said input signals include signals relating to the current level being applied to a predetermined portion of an AC bus.

10. (Previously Presented) The multi-use controller of claim 7, wherein said input signals include signals selectively enabling the start mode or generate mode of operation, and

said controller further comprises a switch for selectively providing said start control signals to said switching driver during said start mode and said generate control signals to said switching driver during said generate mode.

11. (Previously Presented) The multi-use controller of claim 7, wherein said power conversion unit includes a full bridge arrangement of electronic switches for providing said AC and DC power to said exciter stator.

12. (Previously Presented) The multi-use controller of claim 11, wherein said full bridge arrangement includes at least four switches.

13. (Previously Presented) The starter/generator system of claim 1, wherein said controller includes:

a logic unit for generating an operation mode setting signal; and

a switch for selectively providing said start control signals to said switching driver during said start mode of operation and said generate control signals to said switching driver during said generate mode of operation.

14. (Previously Presented) The multi-use controller of claim 1, wherein said power conversion unit includes a full bridge arrangement of electronic switches for providing said AC and DC power to said exciter stator.

15. (Previously Presented) The multi-use controller of claim 14, wherein said full bridge arrangement includes at least four switches.

16. (Previously Presented) The starter/generator system of claim 13, wherein said logic unit receives input signals relating to a regulated voltage level being applied to a particular line portion of said starter/generator system.

17. (Previously Presented) The starter/generator system of claim 13, wherein said logic unit receives input signals selectively enabling the start mode or generate mode of operation.

18. (Previously Presented) The multi-use controller according to claim 7, wherein said starter/generator system is an aircraft starter/generator system.

19. (Previously Presented) The multi-use controller according to claim 7, wherein said starter/generator is synchronous and brushless.